022003-510701-(01)

Bravo™ DISC PUBLISHER

Automated Optical Disc Duplication & Printing System

USER'S MANUAL

FOR MACINTOSH

PRIMERA

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Printing History

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FCC Compliance Statement: This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For Users in the United States: This product is intended to be supplied by a UL listed Direct Plug-In Power Supply marked "Class 2"or a UL listed ITE Power Supply marked "LPS" with output rated 12VDC, 4.5A or higher. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Use of shielded cables is required to comply with the Class B limits of Part 15 of the FCC Rules. You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate and/or obtain warranty service for this equipment.

For Users in Canada: This digital apparatus does not exceed the Class B limits for radio noise for digital apparatus set out on the Radio Interference Regulations of the Canadian Department of Communications. Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la class B prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

CAUTION!

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THE UNIT TO RAIN OR MOISTURE. TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE EXTERIOR PANELS. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. OPERATE THE UNIT WITH ONLY THE PROPER ELECTRICAL SPECIFICATIONS AS LABELED ON THE PRINTER AND AC ADAPTER.

CAUTION!

THIS PRODUCT CONTAINS A LASER DIODE OF A HIGHER CLASS THAN 1. TO ENSURE CONTINUED SAFETY, DO NOT REMOVE ANY COVERS OR ATTEMPT TO GAIN ACCESS TO THE INSIDE OF THIS PRODUCT. REFER ALL SERVICING TO QUALIFIED PERSONNEL. THE FOLLOWING LABEL APPEARS INSIDE YOUR UNIT:

CLASS 1 LASER PRODUCT
LASER KLASSE 1

CAUTION!

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION.

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Interactive Feature in this PDF Document

There are interactive features that will allow you to jump to different locations within the document. Each listing in the Table of Contents is interactive. Place the cursor on either the words or the page number. A small hand with a pointing finger icon appears. Click on the line with the icon and the document will jump to that page. If you want to return to the Table of Contents, move the icon to the top of the page and click on the arrow marked TOC. Navigating through the Index is similar. Place the icon on one of the listings or page numbers, click on it, and it will move to that page. The text relating to the Index listing will appear in red. Returning to the Index can be done by clicking on the arrow marked Index.

Section 1: Getting Started

THANK YOU...

...for purchasing the Bravo™ Disc Publisher. Bravo is the perfect all-in-one solution for producing professional looking CD-R and DVD-R discs. A wide variety of disc formats are supported, including audio CDs, Video CDs, data discs and more. Operation is simple and completely automatic once a job has been started.

To begin using your Disc Publisher, please read this manual carefully. This Operator's Manual is a complete step-by-step guide to quickly and easily create discs with your new Optical Disc Publisher.

NOTE ON TERMS AND CONVENTIONS:

From this point forward, the following terms and conventions will apply:

The Bravo Disc Publisher will be abbreviated simply as the Publisher.

Optical discs, which can include many different types of discs including CD-Rs, CD-RWs, DVD-Rs and more are all referred to as CDs or discs. Please note that in order to copy and record DVDs, you will need to have purchased the DVD-R version of the Publisher.

A. CHOOSING A GOOD LOCATION

- Place the Publisher in a location with adequate air circulation to prevent internal heat build up. You will need at least 24" (61 cm) of overhead space to allow the top cover to open freely.
- Do not place the Publisher near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

B. UNPACKING AND INSPECTION

While unpacking your Publisher, inspect the carton to ensure that no damage has occurred during shipping. Make sure that all supplied accessories are included with your unit. The following items should be included:

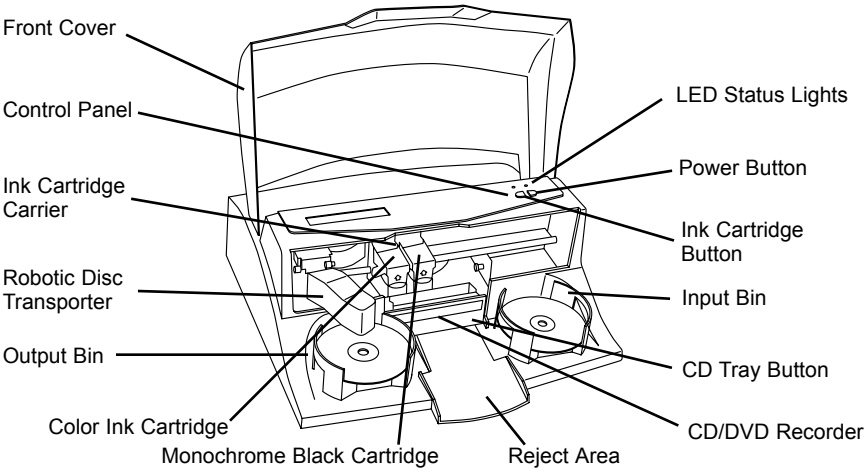
- Optical Disc Publisher
- Gray Plastic Input and Output Bins
- Switching Power Supply with Power Cord
- One Three-Color (CMY) Ink Cartridge
- One Monochrome Black Ink Cartridge
- Installer Disc (for use with both CD-R and DVD-R models)
- IEEE 1394 FireWire Cable (Black)
- USB Interface Cable (Biege)
- Warranty Card
- This Operator's Manual, Quick Start Guide and Other Printed Information

Save the carton and packing materials. They will come in handy later if you ever need to transport the Publisher and/or any of its parts and accessories.

C. IDENTIFYING THE PARTS

Front Panel and Top

This illustration shows the Publisher, its Control Panel, Buttons, LED indicator lights, Input and Output Bins and other components.



The **Robotic Disc Transporter** moves discs from the Input Bin, to a CD/DVD Recorder, to the printer, and finally to the Output Bin.

The **CD/DVD Recorder** is automatically loaded and unloaded by the Publisher's Robotic Disc Transporter.

The **Recorder Tray Button** manually opens or closes the Recorder Tray. In normal operation, the in/out movement of the Recorder Tray is controlled automatically and this button is not used.

The **Control Panel** contains LED Status Lights and Buttons to control the Publisher.

The **LED Status Lights** indicate that Power is ON. They also blink in certain patterns to indicate an error or other condition of the Publisher. See Section 4 for a full explanation of the LED Status Light conditions.

The **Power Button** turns the Publisher's power ON and OFF.

When the front cover is opened, the **Ink Cartridge Button** is used to position the Cartridge Carrier for easy ink cartridge replacement.

The **Input/Output Bins** are situated under the top cover of the Publisher. The bins will hold up to 25 discs. The right-side bin is the Input Bin for blank media; the left-side bin is the Output Bin for finished discs.

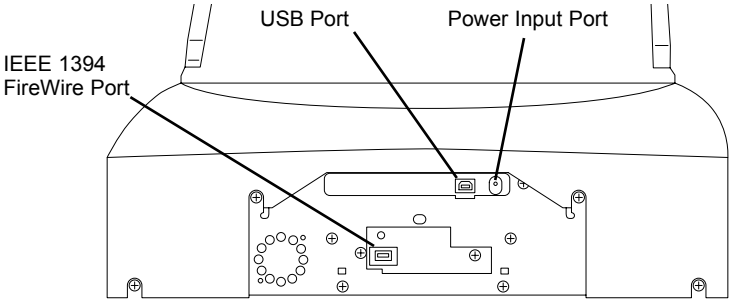
The **Reject Area** is where discs are dropped if they do not pass a software verification test. The discs slide down the ramp out in front of your Publisher.

The **Front Cover** is a durable plastic cover that will protect the Publisher from dust and interference.

The **Ink Cartridge Carrier** holds both a color ink cartridge (left-side pen) and a monochrome ink cartridge (right-side pen).

Rear Panel

This illustration shows the input ports found on the rear panel of the Publisher:



The **FireWire (IEEE 1394) Port** receives data that is to be passed on to the recording drive.

The **USB Interface** is connected to an open USB port on your computer with a standard USB cable, included with your Publisher.

The **Power Input Port** connects to the included 100V~240V 12V switching power supply.

D. SYSTEM REQUIREMENTS

Before getting started, it is important for you to verify that your computer meets the recommended system requirements. Here's what you need in order to successfully burn and print with the Discribe software:

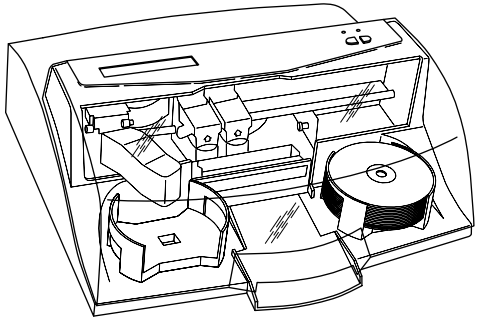
- G4 PowerPC 700MHz or higher running OS X version 10.2 or higher
- 256MB RAM
- Free hard drive space of at least 2 GB (up to 6 GB for DVD)
- Available USB and FireWire Ports

If your computer does not have at least these minimum system requirements, system performance may not be acceptable.

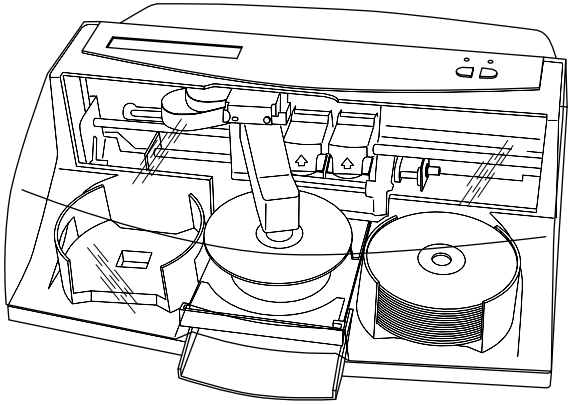
E. OVERVIEW OF OPERATION

Your new Publisher is an automated, precision device intended for continuous-duty publishing of discs. The following is a description of the complete process of duplicating and printing a CD/DVD job on your Publisher:

1. Up to 25 blank discs may be loaded at one time into the Input Bin.

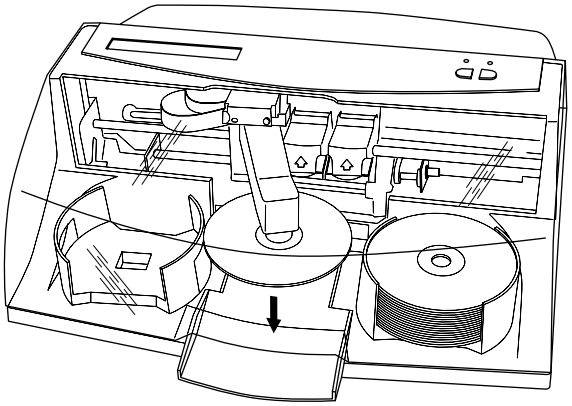


2. The Publisher has an integrated Robotic Disc Transporter that "picks" one disc one at a time from the Input Bin.
3. The Recorder Tray opens automatically and the Robotic Disc Transporter places a disc into the recorder.



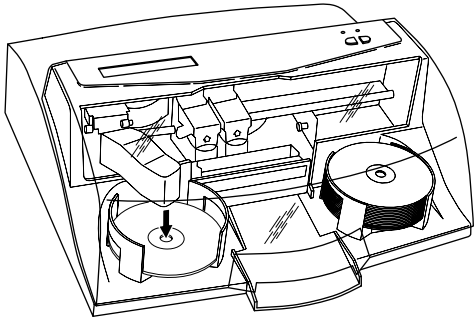
4. The Recorder Tray then automatically shuts.

   Through software control, you can perform a test on each disc before recording. If a disc does not pass (meaning that all or part of that disc is not recordable), the Robotic Disc Transporter picks it out of the CD Tray and sends it to the Reject Area.



5. The Recorder is now writing to the disc. If you were to fully record a CD with data, audio, video or music (650 MB), recording time is about 3 ½ minutes each. A full DVD records in about 30 minutes. Most jobs don't fill the entire disc, so recording time is usually less than this. After recording, the Recorder Tray opens automatically. The Robotic Disc Transporter will lift the disc out of the Recorder Tray. The Recorder Tray will close, and the Printer Tray will open. The Robotic Disc Transporter will lower the disc into the Printer Tray, and the Printer Tray will then automatically close.
6. If publishing more than one disc, the Robotic Disc Transporter will load the Recording Drive with a blank disc from the Input Bin to start recording the next round.
7. Once recording has started, the Publisher will be start printing directly onto the surface of the recorded disc. This simultaneous recording and printing of discs greatly increases the throughput of your Publisher.

8. Print time varies according to which print mode has been selected (section 3-A). In most cases, print time takes no more than 2 minutes. After printing the first disc, the Publisher's Printer Disc Tray opens automatically. The Robotic Disc Transporter moves the finished disc to the Output Bin.



9. The process starts over and repeats until all blank discs are gone or the number you have specified via software are copied and printed.
10. Now that you understand the order of operation, it is time to set up your Publisher.

Section 2: Software and Hardware Set-Up

The installer disc contains a set of programs to design and control the printing of your discs as well as a recording program to author and automate the duplication of your discs. The following steps will guide you through the installation of software and the setup of the Bravo Disc Publisher.

A. INSTALLING THE MAC SOFTWARE

Before installing Discribe please note that all software must be installed on a hard disk. Once you have installed the software, store the original program CD-ROM in a safe place.

Install the software as follows:

a. Insert the Bravo Installation CD-ROM in your system's CD-ROM drive.

b. Double-click the CD-ROM icon.

c. Double-click on the **Disc Publisher Installer.mpkg** file icon. Follow the on-screen instructions.

d. The volume containing the operating system should be selected for installation. Click the **Continue** button. All components will be installed to their proper locations.

e. Once the installation has completed, click **Quit**.

You have successfully installed all the necessary software! The next section will describe how to connect the Bravo to your Mac.

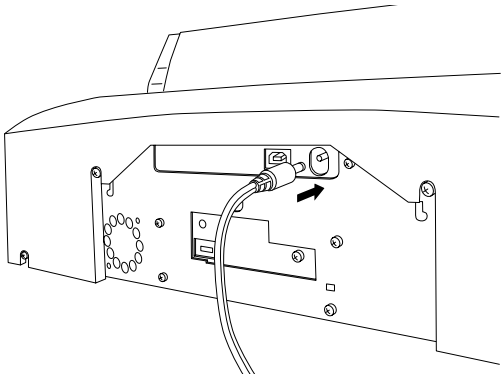
B. HARDWARE SETUP

Bravo connects to your Mac in just 5 easy steps. To connect your new disc publisher, please do the following:

Be sure you have removed the packing tape and cardboard insert prior to applying power.

Step 1: Applying Power

- Locate the power adapter supplied with your Publisher.
- Place one end of the adapter cord into the power port on the rear panel of the Publisher.
- Unit will initialize for 30 seconds or so.



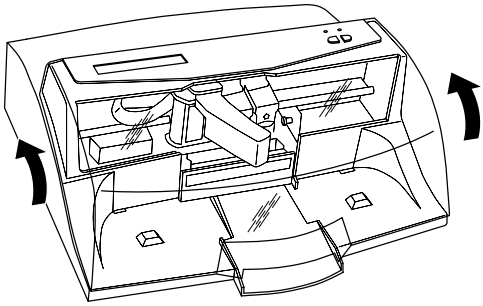
Step 2: Loading Media (Discs)

NOTE: *Your Publisher can print directly onto virtually any brand of printable-surface CD/DVD media. Since different brands of discs have different printable coatings, however, you may need to adjust the printer driver settings to accommodate your specific brand of CD/DVD media. Refer to Section 3 for further printer driver information.*

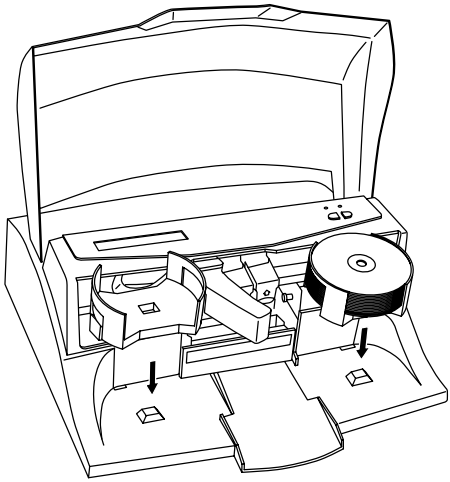
Due to the wide variety of printable-surface CD/DVD media, you may find that certain brands of discs provide higher print quality than others. For maximum print quality, use CD/DVD media authorized by Primera.

Refer to the following steps when loading discs in to the Publisher:

- Open the front cover of the Publisher



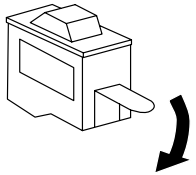
- The Publisher will automatically position the cartridge carrier and Robotic Disc Transporter to the center position allowing for easy access to the bins.



- Load the Input Bin (the bin located on the right-hand side of the Publisher) with 25 blank discs and place the bins on the mounting pegs.

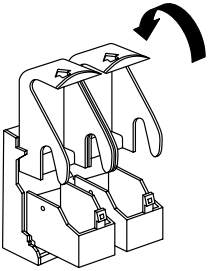
Step 3: Installing Ink Cartridges

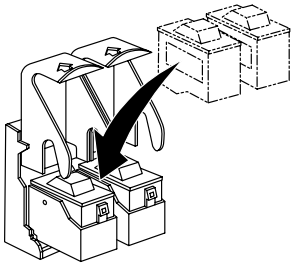
- Press the Ink Cartridge Button to move the Ink Cartridge Carrier to the load position and open the ink cartridge covers
- Remove each ink cartridge from its packaging
- Slowly remove the tape covering the cartridge's print head, being careful to avoid damaging the barcode label on the underside of the cartridge.

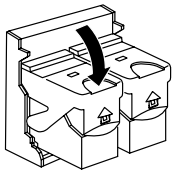


DO NOT TOUCH THE COPPER AREA!

- Insert the ink cartridges into the carrier, copper end first and snap the cartridge cover in place. Insert the color in the left holder, monochrome black in the right cartridge holder.



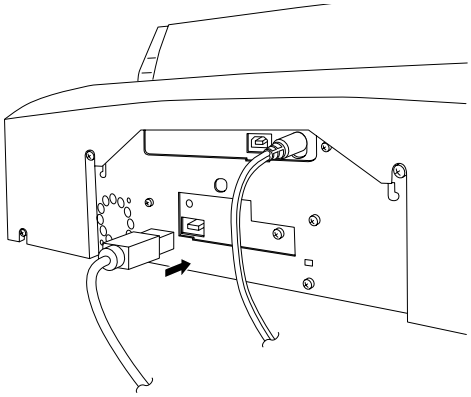




- Close the Publisher's front cover.

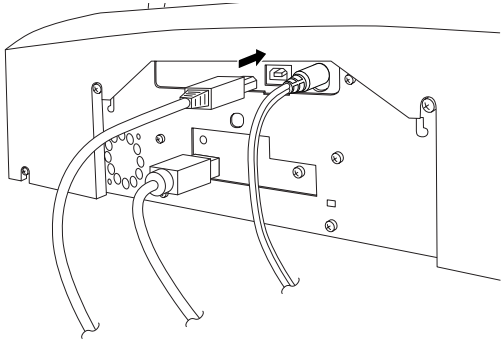
Step 4: Connecting the FireWire Cable

The black IEEE 1394 FireWire cable carries the data that will be sent to the recorder when producing discs. Connect the 6 Pin FireWire cable included with your Publisher. Connect the other end to the FireWire board's output port on your computer.



Step 5: Connecting the USB Cable

Connect the Publisher to your computer with the beige USB Cable.



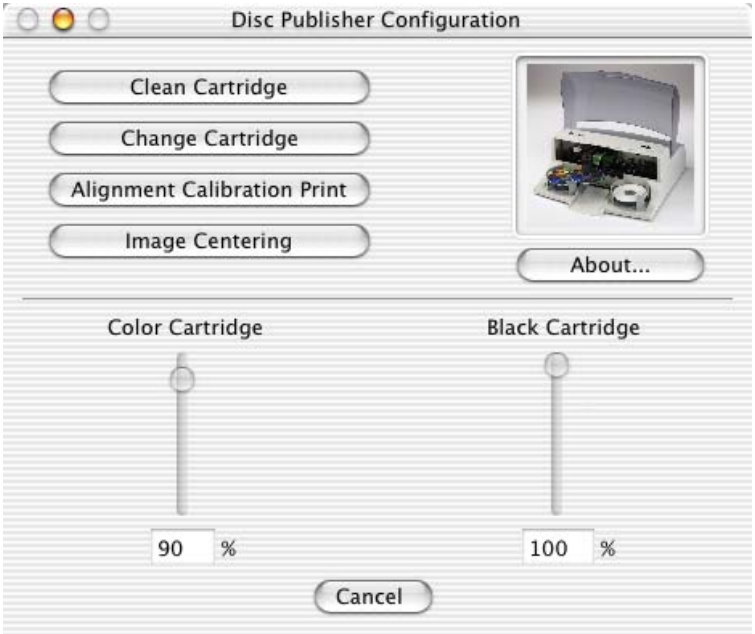
For optimal quality, it is recommended that you run the Configuration Utility as described in the following section.

C. CONFIGURATION UTILITY

The Configuration Utility is a program that installs with your Bravo software. This utility allows you to monitor ink levels, maintain and calibrate ink cartridges and align printing on the disc. The Configuration Utility can be launched from the Print Center in OSX by doing the following:

1. Click the **Finder**
2. Click the **Applications** Icon
3. Scroll to **Print Center**
4. Highlight the **Disc Publisher** and click the **Configure** Icon

You can also launch the Configuration Utility from the Disc Publisher printer settings in any printing application by clicking **File** then **Print** and selecting **Publisher Settings**. In **Publisher Settings** you will find a button to launch the **Configuration Utility**. When launched, the following pane appears:



You will see both the Color and Monochrome Ink Levels are displayed. The Color Ink Level represents the lowest color in your cartridge. For instance, if your cartridge has 80% cyan 50% yellow and 65% magenta ink remaining, the level reported would be 50%. You will also see the following buttons:

Clean Cartridge

Cartridges that sit idle in the Bravo for a period of time may start to experience some drying of ink in the tiny nozzles that make up the print head. Clicking the **Clean Cartridge** button will cause the bravo to pick a disc and place in into the printer tray. The Bravo will then print a simple pattern that will flush ink through the nozzles. The test pattern will also show you if any nozzles are clogged. In the pattern you will see some diagonal lines which should be continuous; breaks in those lines indicate a clogged nozzle. Please note that it may require more than one cleaning to fully clear all nozzles. If the nozzles are not fully clear after a few cleaning prints, it may be necessary to remove the cartridge and actually clean the print head by gently wiping the nozzles with a moist cloth or paper towel and replace it in the Bravo. If this fails, the cartridge may be empty and in need of replacement.

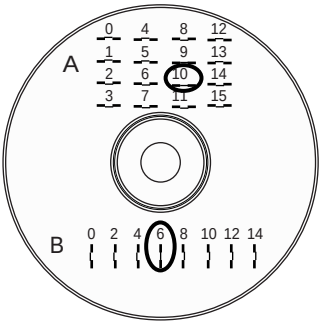
Change Cartridge

If you need to change cartridges, it is a good idea to use the **Change Cartridge** button in the Configuration Utility. This ensures the most accurate tracking of ink levels. To change a cartridge, click the **Change Cartridge** button. The cartridge holder will move to the center of the Bravo to make it easier to install the cartridges. Lift the top cover and install the cartridges and described in section 2-B of this manual. You will be prompted to let the system know whether or not you are installing a new or used color or monochrome cartridge. Once installed, click the **OK** button and the system will update your cartridge levels.

Note: *It is recommended that you perform and **Alignment Calibration Print** after installing a new cartridge.*

Alignment Calibration Print

Clicking this button will print a test disc that will provide a scale by which to calibrate the Color Ink Cartridge to the Monochrome Ink Cartridge. This is crucial when selecting the **Black and Color** Ink Cartridge setting in the Printer Driver as described in section 3-C of this manual. Make certain you have discs and ink installed in your Bravo prior to pressing this button. Once pressed, the Bravo will load a disc and print the following pattern:



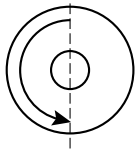
Follow the on-screen instructions and enter the numbers as indicated. For instance, in the example shown, you would choose a value of 10 for the A setting and 6 for the B setting.

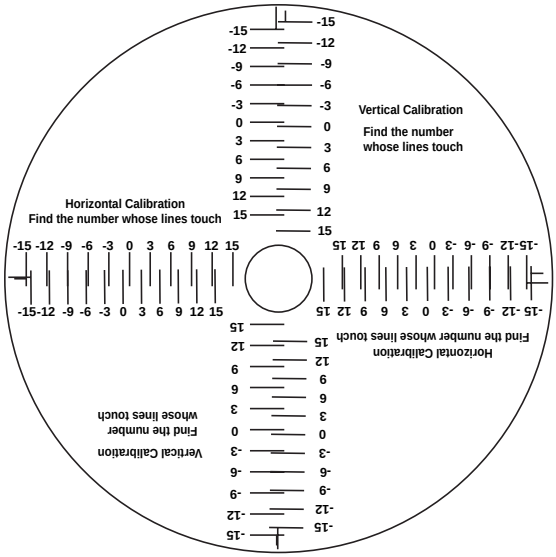
It is highly recommended that you perform this calibration whenever you change cartridges if using the **Black and Color** ink cartridge setting in the printer driver.

Image Alignment

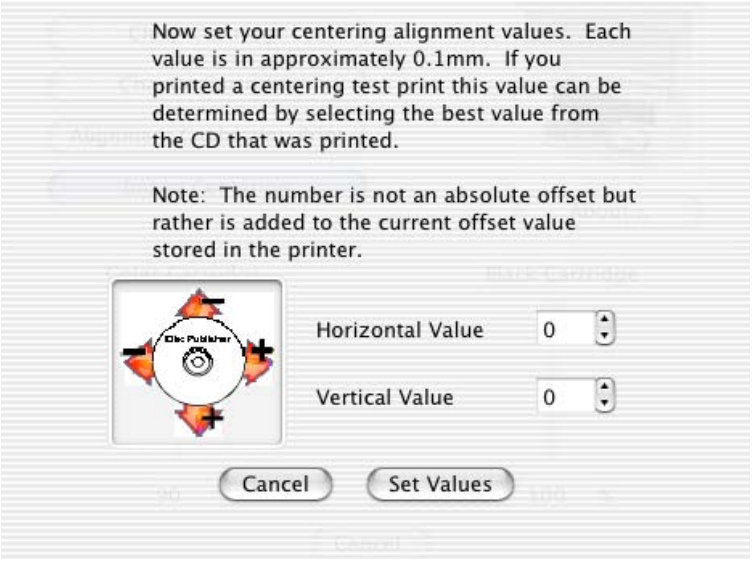
The Image Alignment button will allow you to nudge the image up, down, left, or right on your disc. To center the image, click the Image Alignment button. You will be prompted with a choice to print a test print or simply enter values to nudge the image alignment on the disc.

If you do not know the direction and distance to move the image in order to center it on your disc, you can opt to print the centering test print. Make sure the Bravo has discs and ink cartidges installed, and it is connected and ready to receive a print job, and then click the **Yes** button. The Bravo will pick a disc and print a scale of numbers on it. You will be prompted to open the Bravo's front cover, rotate the printed disc 180 degrees, reload it into the input, and close the cover. Click **OK** when ready and the Bravo will pick the disc and print another scale of numbers. The disc should look like this:




Vertical Calibration
Find the number whose lines touch
Horizontal Calibration
Find the number whose lines touch
Horizontal Calibration
Find the number whose lines touch
Vertical Calibration
Find the number whose lines touch

Once the print has finished, you will see the following dialog box:


Now set your centering alignment values. Each value is in approximately 0.1mm. If you printed a centering test print this value can be determined by selecting the best value from the CD that was printed.
Note: The number is not an absolute offset but rather is added to the current offset value stored in the printer.
Horizontal Value
0
Vertical Value
0
Cancel
Set Values

Look at the finished alignment disc and pick the numbers that come closest to lining up with one another. For instance, on the disc shown in this manual, the vertical alignment is -6 and the horizontal alignment is -9. Enter this in the alignment dialog box.

If you choose not to print the test print, you will simply see the alignment dialog box and can enter values to move the image. The unit of measure is roughly 0.1mm. Making the Horizontal Calibration number smaller or more negative will move the image slightly to the left. Making the Horizontal Calibration a larger value, or more positive will move the image to the right. If the Vertical Calibration number is made smaller, or more negative the image will move slightly up. If the Vertical Calibration is set to a larger value, or more positive value, the image will move down on the disc.

Section 3: Creating Discs

There are two main components to creating discs, printing and recording. Discus program will aid you in designing the printing for your discs. Discribe 5.1 will allow you to master the data and automate the recording and printing of your discs. This section will describe both of these applications in detail.

A. USING DISCUS

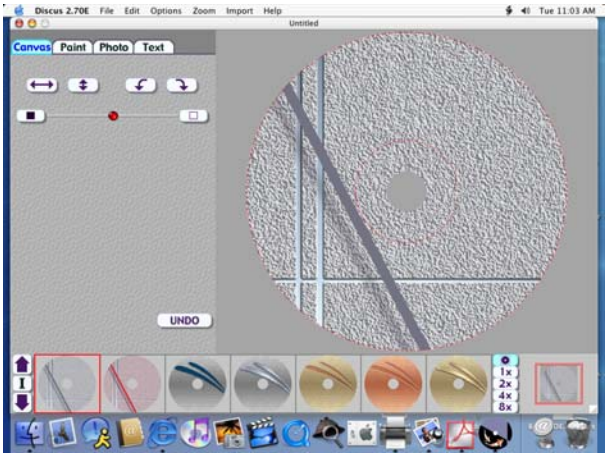
The Discus software included with your Publisher is a great tool for creating professional looking discs. You can use Discus' custom backgrounds and easy to use text features to quickly design a label, or import labels designed in other software packages. The On-Line Help section will provide complete instructions on all the features in this package. The following is a tutorial on creating a basic disc design.

1. Launch Discus
2. Click **New Project**
3. Select a Label type (i.e. Disc, Hockey Rink Business Card, Rectangular Business Card, or 80mm Cd)
4. You will now see your template and 4 Tabs with different tools to help you design your disc. The first tab, **Canvas**, will allow you to select from one of the built in backgrounds.

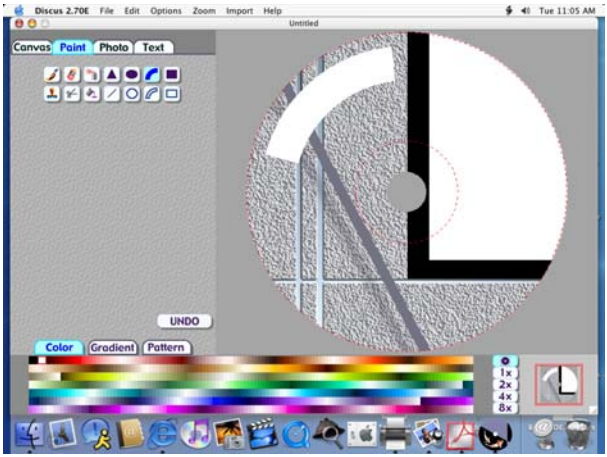
The Up and Down Arrows in the lower left corner of the screen will allow you to browse through the available backgrounds. Simply click on a background will apply it to your template. You also have some tools to invert (or flip), rotate, and adjust brightness of your background.

5. Once you are satisfied with your background, click on the **Paint** tab to "paint" any lines, circles or shapes on your disc. You can select from borders or filled shapes, and pick your desired color at the bottom of the screen. If you make a mistake, click **Undo**.
6. Click on the **Photo** tab if you would like to add a photo or graphic to your design. Click New to import a graphic or photo. You will see a browser to allow you to search for your desired graphic. Discus will import BMP, GIF, JPEG,

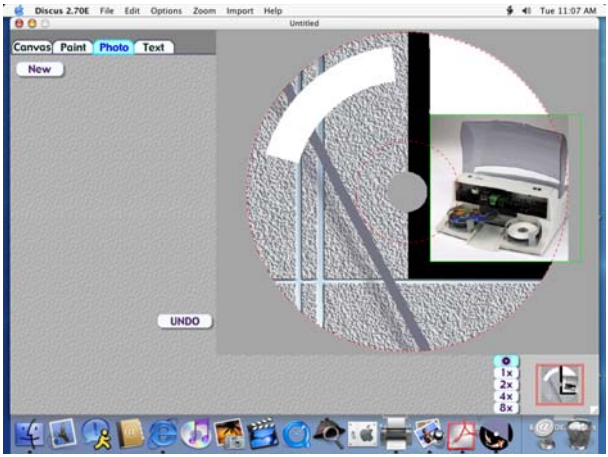
Canvas



Paint



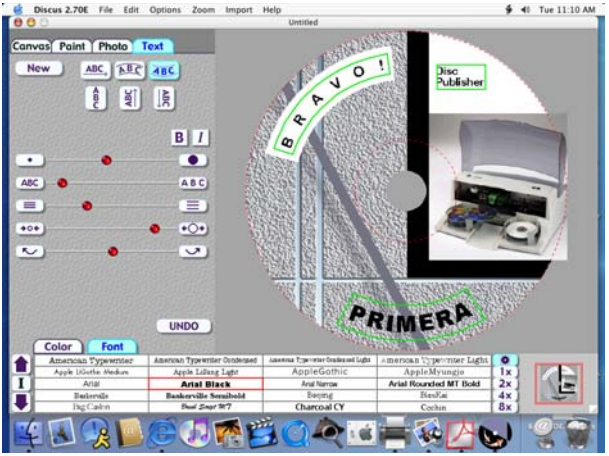
Photo



or PICT file formats. The options on the left-hand side of the screen will allow you to crop, flip the image both horizontally and vertically, rotate 90 both clockwise and counter-clockwise, and resize the image. You can simply grab and drag the image to relocate it on your design.

7. Click on the **Text** tab to insert custom text fields on your disc. The same method of browsing used to select backgrounds on the Canvas tab is used here to select fonts. Discus uses fonts loaded in your system. If a recently installed font does not appear available, you may need to close Discus and re-open it to refresh the list of fonts. Here you will see easy tools to make arced and straight text fields as well as tools to allow you to position and resize your text.

Text



8. Click on **File** and select **Save As** from the main menu at the top of the screen. Your design will be saved both as a Discus Design Project that can be reopened and edited and as a BMP file that can be imported into Discribe for printing as described in section 2-B of this manual.

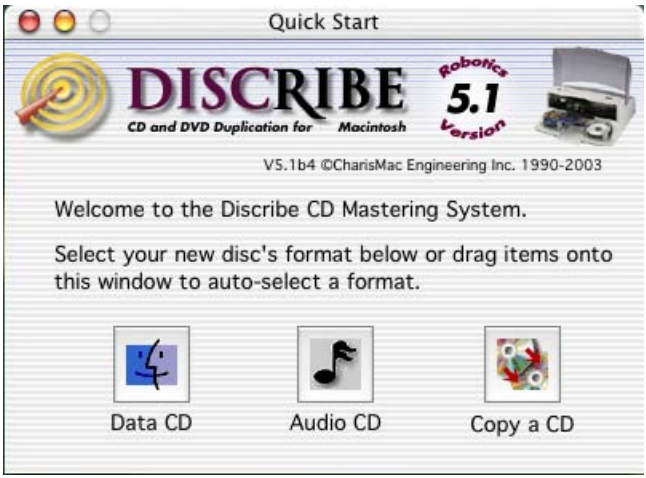
9. You can also print files directly from Discus. This is a good way to proof your design prior to doing a disc job. To do this, click **Page Setup** and set **Format For to Disc Publisher**. Then, select the proper **Paper Size**, usually CD/DVD. Next, click **File** then **Print** and select **Publisher**

Settings from the Copies and Pages pull down menu. This will allow you to select the printer setting you wish for your print. These settings are described in detail in section 3-C of this manual.

B. USING DISCRIBE 5.1

Now that you have a label designed, lets take a look at how to create the data you want recorded to the disc. This is done in CharisMac Discribe 5.1. Discribe will allow you to create many types of discs. The following tutorial will guide you through the creation of an audio disc.

1. Double click the Discribe Icon to launch the program. You will see a splash screen followed by Discribe's Quick Start Menu.



2. This offers a quick selection of the most frequently used job types. More types are available in the main application. For this tutorial select we will be making an Audio CD. Click the **Audio CD** button. You will now see the Audio Job Window.

3. Add your audio tracks by dragging AIFF, MP3, WAV, Sound Designer II (SDII) files or tracks from mounted Audio CDs to the window. You can drag one or multiple files to the window in any combination. Files that are in MP3, WAV and SDII file format will need to be converted into a file format that Discribe can use to write to CD. Discribe will prompt you for a save location for these files when they are dragged to the interface. Select the desired location and click the **Select "Your Location"** button for the conversion to take place. Once the conversion has completed, the newly converted file will be added to your project.

Note: *AIFF Files will need to be in a specific format in order for Discribe to accept them. Please be sure that your hard disk has enough space for the converted files and that the files adhere to the following guidelines:*

- Stereo
- 16 Bit
- 4431 KHz

Tip: *SDII, MP3 and WAV files will be converted into this format, files added from a mounted audio CD do not have to be converted, but can be converted by holding down the Command key when dragging tracks from a mounted audio CD to the interface. Discribe will prompt you to find out where you would like the extracted tracks saved.*

4. Click the **Audio**… button to view the Audio Picker pane. This will show all the tracks that have been added to your current audio project. You can add tracks by clicking the Add... button and navigating to the desired track, or you can remove tracks by selecting them in the Audio Picker window and clicking the Remove button.

   Sequence your tracks by clicking and dragging the audio track to the desired location within the Audio Picker pane. You can select multiple files in the same way that the Finder's 'List' view works (click and drag or by Shift clicking on multiple files).

   Discribe allows you to customize the pre-gap, or, the space at the beginning of a track, from 0 to 9 seconds. To set the pre-gap on a track or tracks, select the desired track(s) in the Discribe Audio Picker window and click the pre-gap pop-up menu and select the desired length of time.

Note: *The first audio track must have a pre-gap of two and is not user definable. By default, Discribe will set the pre-gaps of tracks 2 and higher to 2 seconds.*

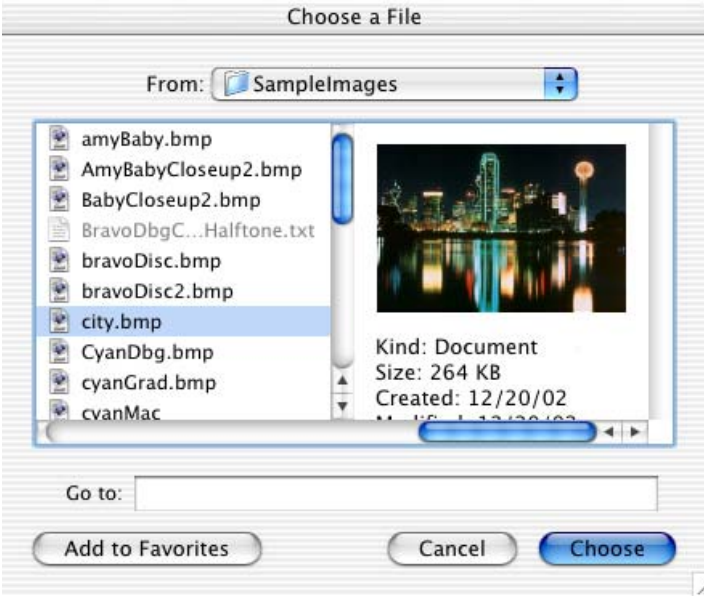
1. You may preview audio tracks by selecting the desired track and clicking the **Play** button.
2. If you are satisfied with the content of your audio project, you are ready to write the disc. If you are still in the Discribe Audio Picker window then click the **OK** button to return to the main interface. Verify that the

correct CD-RW Recorder is selected, if it's not, select it from the Recorder pop-up menu, then click the **Robot Write** ... button.

It is important to use the Robot Write Disc instead of Write Disc if you want the Bravo to automatically load and unload discs. You will be presented with a Write Options window. The **Robot Write** Options window contains choices for the following:

- **Print Image on discs**
  This check box will enable printing.
- **Choose image...**
  Pressing this button will launch a window to select the image you wish to print.

You can select any file type that Apple's Preview supports, including: JPEGs, TIFFs, PICTs, PDFs, GIFs, BMP, JPEG 2000, MacPaint, Photoshop, PNG, QuickTime Images, SGI, TGA, and more. Browse the desired image and click **Choose** to apply it to your disc job.



- **Page Setup**
  This will allow you to set the "page size" or disc type appropriate for your project. Click this button and set **Format For** to Disc Publisher. You will than have the option to select a Paper Size as described in section 3-C of this manual.
- **Print Settings**
  This launches the printer driver settings as described in section 3-C of this manual.
- **Design Image**
  If you do not already have a graphic you would like to print, click this button to launch Discus, the disc graphic design application included with your Bravo software. See section 3-A in this manual for more information on designing your disc.

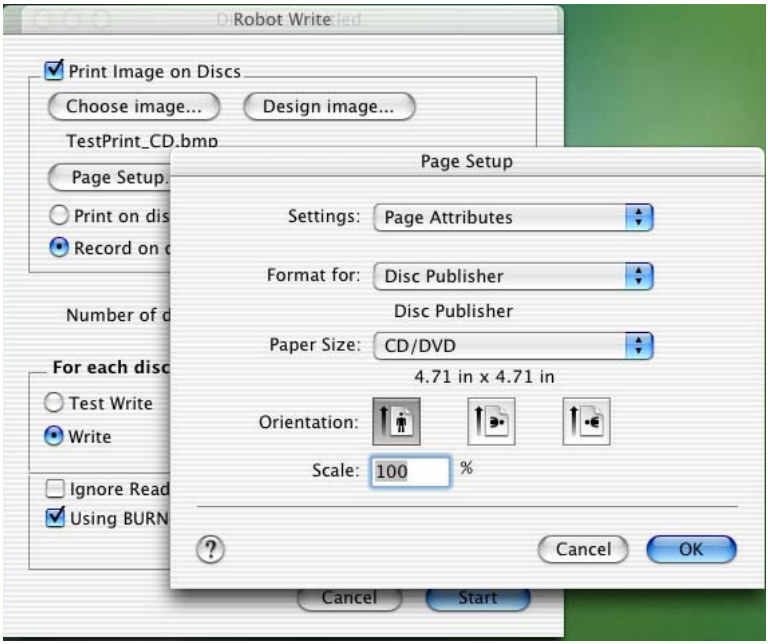
- **Print on disc before recording / Record on disc before printing**
  These options allow you to choose whether or not you wish to record or print first on the discs. It is recommended that you always record first to avoid wasting ink on discs that fail verification. However, when producing business card CD-Rs, it is required to print first in order to make sure the card aligns properly in the printer because it is not possible to control the direction a card is facing when it leaves the recorder.
- **Number of discs**
  Select the number of discs you wild like to produce.
- **Test Write / Write**
  This allows for either an actual write or a simulated write to your media.
- **Write Speed**
  This defaults to the fastest write speed that the current selected writer supports. The speed may be set lower if failures occur.
- **Open Next Session**
  Selecting this will leave the disc open for another session to be written later.
- **Verify After Writing**
  Checking this will allow freshly written data discs to be verified against the original to ensure that the copy and the original are the same. This will increase the time it takes to create a disc.
- **Using BURN-Proof / JustLink**
  This setting allows Discribe to take advantage of drives using BURN-Proof/JustLink type technologies. This setting will cause your drive to monitor the transfer of data and slow the recording speed if data is not reaching the drive fast enough. This is helpful in avoiding recording failures, but may slow recording times.

5. Click **Start** to begin recording. The Bravo will automatically print and record your discs!

C. PRINTER OPTIONS

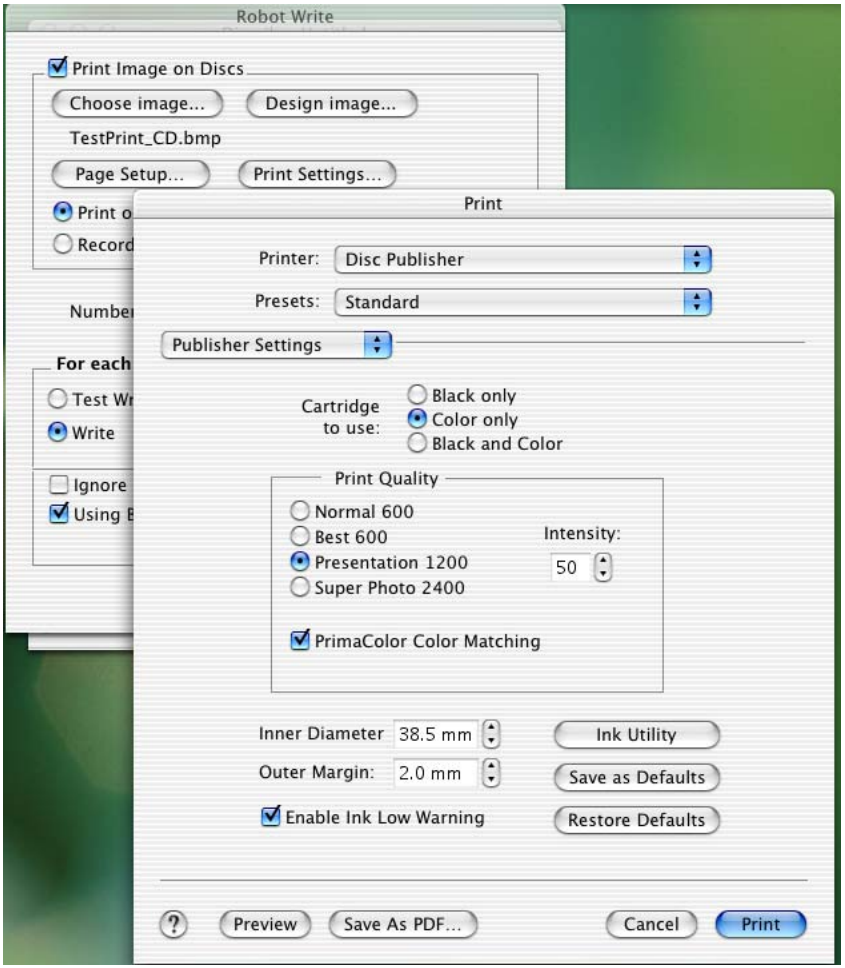
The following section will examine the printer driver settings that affect the print quality of your discs. While the default settings will fit most printing needs, it is a good idea to familiarize yourself with these settings to optimize your print quality. The printer driver settings are contained in two areas, Page Setup and Print Setup. You can access the driver settings as follows:

1. From Discus, Discribe, or any printing application, click the **Page Setup** and set **Format For** to Disc Publisher.
2. The paper sizes for the Disc Publisher refer to the type of disc to which you will be printing. The available sizes are: CD/DVD, Business Card Disc, 80mm CD and Hockey Rink Disc.



Print Settings

Click **Print Setup** to see the driver window and all of its settings. You will want click the **Copies and Pages** button and select **Publisher Settings** option in the drop-down menu to see the full pane and access all the printer driver settings.



The following is a description of the printer driver settings:

- **Cartridge to use**
  The **Black and Color** setting will use both cartridges when printing your image. Color will only use the Color Cartridge, and **Black Only** will only use the monochrome cartridge for printing.

Note: *If using the **Black and Color Setting**, be sure to perform the Cartridge Alignment found in the Configuration Utility. Refer to section 2-B for more details on this calibration.*

- **Print Quality**
  There are four options for image quality. Keep in mind that Normal 600 provides the fastest print at lower quality while Super Photo 2400 delivers the best quality at a slower print speed.
- **PrimaColor™**
  Click on this Check box to enable PrimaColor color matching. The PrimaColor profiles were written specifically for the Bravo to give a precise color match when attempting to print photographic images. If you are using a third-party color management system, disable PrimaColor.
- **Intensity**
  The Intensity setting will control the amount of ink saturation on the disc. When printing onto the Primera ToughCoat discs, 50% is usually sufficient. When printing on to other brands of media, or if you would like to print darker colors, you may wish to increase the Intensity setting. Please note that higher ink saturation could result in discs not drying instantly. Also, higher intensity will result in higher ink usage causing a lower yield of discs per cartridge.
- **Inner Diameter**
  The inner diameter refers to the size of the non-printed center on your disc. The size of the center hub can vary from one type of media to the next. This allows you to set the inner diameter in millimeters allowing you to print all the way to the center hub regardless of the type of disc you are using. For the discs that Primera sells, use the following guide for Inner Diameter:
  - 38.3 mm for Primera's ToughCoat CDR
  - 24.9 mm for the Hockey Rink Disc, Business Card Disc and 80mm CD

- **Outer Margin**
  The Outer Margin refers to where the printing will cut off around the outer edge of your disc. The size of the printable surface can vary from one type of media to the next. This allows you to set the outer margin in millimeters allowing you to print all the way to the edge regardless of the type of disc you are using.
- **Config Utility**
  This button launches the Configuration Utility. This Utility is also available in the Print Center by selecting the Disc Publisher and clicking the Configure Icon. This utility is used to report ink levels, clean and change ink cartridges, and align your color and black cartridges for optimal print quality. In addition, this utility will allow you to center and adjust your printed image. Refer to section 2-B of this manual for a detailed description of this program.
- **Enable Low Ink Warning**
  The Low Ink Warning basically keeps you from printing discs if one ore more of the colors in your ink cartridge are running out. Your Bravo monitors the amount of ink used when printing and will stop printing if one or more of your colors is within 10% of being empty, and the LEDs on the top will flash in unison. If you press one of the Cartridge button on the top of the Bravo it will continue to print, but you will want to closely monitor the discs that print. If discoloration occurs, you are most likely out of one or more colors and will want to change cartridges. Please refer to section 2-B for instructions on how to change and align ink cartridges.
- **Save As Default**
  The Save As Default button will save the current settings as the system-wide defaults.
- **Restore Defaults**
  The Restore Defaults button will restore the driver settings to the factory defaults.

Section 4: Interpreting the Publisher's Indicator Lights

The Power and Busy LED indicator lights located on the top of the Publisher can tell you a lot about what is happening inside the Publisher. To accurately interpret what it means when these lights are on, off, or flashing, please refer to the following:

Ink Cartridge LED	**Power LED**	**Publisher**
off	on solid	Is ready to receive job
on solid	on solid	Has received a job and is waiting for the Robotic Disc Transporter to load a disc
both lights are blinking alternately with one another		Waiting for a cartridge to be installed and the lid to be closed. (See section 2-A).
flashing rapidly	on solid	The printer tray or ink cartridge carrier has stalled. Press the Ink button to retry the operation.
on solid	flashing rapidly	The Publisher has a cartridge problem. Check to make certain that the cartridges are installed correctly and that the bar code labels on the underside of the cartridge are not damaged.
repeating pattern of both lights flashing in unison, then one light momentarily on solid.		This indicates low ink warning. If the left light stays solid after the flash, the Color cartridge is low. If the right light stays on after the flash, the Black Monochrome cartridge should be replaced.

Section 5: Maintenance and Troubleshooting

The Publisher is designed to operate for extended periods of time with very little attention. In fact, no regular maintenance is recommended other than cleaning the outside case.

NOTE: *Do NOT attempt to oil or grease the Publisher's Robotic Arm shaft or other components. You will likely cause more harm than good! Any moving parts are designed to operate for the life of the machine with no additional lubrication required.*

A. CLEANING THE PUBLISHER

Use a clean, lint-free rag with a small amount of ammonia window cleaner to clean the Publisher's outside case and trays. This type of cleaner is very effective on inks that may accumulate on the printer tray. Stronger cleaning solutions are NOT recommended because they may damage the paint and plastic materials from which the parts are manufactured.

Always disconnect your Publisher's power cords before cleaning. Resume operation only after the surfaces are completely dry.

B. PERFORMING A ROBOTIC SELF-TEST

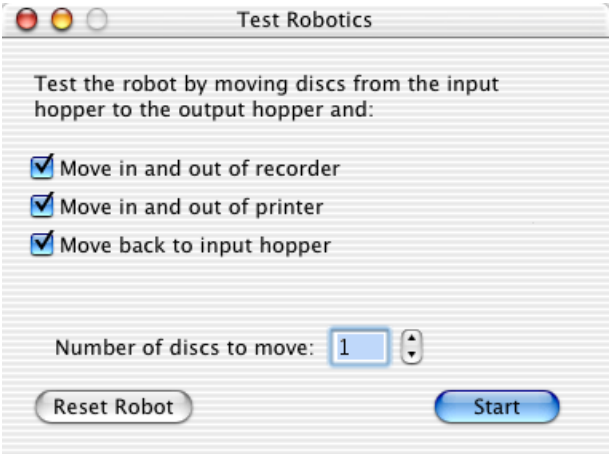
To ensure that everything is working properly, a Self-Test feature is built in to your Publisher. In this mode, the Robotic Disc Transporter will go through the motions of picking and placing a disc to ensure proper working order. This test may be performed without connecting the Publisher to the PC. Perform the test by doing the following steps:

- Load some discs into the Input Bin
- Make sure the Publisher's front cover is closed
- With the Publisher turned on, press the Cartridge Button
- While holding the Cartridge Button, press the Power Button until the robotics start to move.
- Release both buttons
- To stop the test, wait until the disc has moved to the Output Bin and press the Power Button.

C. SOFTWARE TEST

This will confirm that the hardware, software, and your computer are all communicating properly. To perform a software test please do the following:

1. Launch Discribe
2. Click one of the options from the quick-launch menu (i.e. Data CD)
3. Click the **Robotics**… button
4. Click the **Test Robotics** button.


Test Robotics
Test the robot by moving discs from the input hopper to the output hopper and:
Move in and out of recorder
Move in and out of printer
Move back to input hopper
Number of discs to move:
1
Reset Robot
Start

5. You can select where you want discs to go during the test and the number of times to repeat the test. Click **Start**. The Bravo will perform your test.

D. WRITE TEST FAILURE

The write test simulates writing data to the CD by exactly duplicating the write process while holding the recorder's write laser in the off state. If this test is failed, check the following:

- **Fragmentation**
  If the files to be recorded are fragmented (not written cleanly and contiguously) on the hard drive, the time consumed in accessing them may cause the recorder's buffers to "run out" of information temporarily. During the actual write process, this would make the disc being written to useless. Use Norton TM Speed Disk or another

drive utility to test the hard drive for fragmentation. If fragmentation is greater than moderate, you will need to reinitialize to optimize the hard drive.

- **Hard Drive Too Slow**
  If you have an older hard drive, it may be too slow in transferring data to the recorder. Try using a slower recorder speed (1X or 2X). If you are still not successful you need a faster hard drive.

E. BRAVO NOT ACCESSIBLE

If the Bravo or its recorder are not "seen" by the system, make sure that the proper software is loading in the System Folder. Items to double check are the USB (USB manager V1.2 or higher) and FireWire (FireWire V2.1 or higher) drivers (available from Apple). Also check to ensure a tight fit for all USB or FireWire cabling.

F. CLEANING THE INK CARTRIDGES

It may be necessary to clean the ink cartridge nozzles if the printer portion of your Publisher does not seen to be laying down ink evenly or if you suspect an cartridge nozzle has become slightly dried out or clogged. Refer to section 3-A for more information on performing a clean function through the Publisher's printer driver.

G. CLEARING A MEDIA JAM

If a disc should become jammed inside the printing area of the Publisher, with the lid closed press the Cartridge Button. This will eject the Printer Tray. Then open the lid. The Cartridge Carrier will move o the center position automatically. *WAIT FOR THE CARTRIDGE CARRIER TO STOP MOVING!* Then carefully move the cartridge carrier assembly to the left to gain access to the printer tray.

H. TECHNICAL SUPPORT

If you have difficulties in operating your Publisher, the procedures in this manual and the Prassi software User's Guide should, in most cases, solve the problem. If you still have difficulty, contact the technical support number listed on the insert included in the supply pack that came with your Publisher.

Section 6: Technical Specifications

Model	Optical Disc Publisher
Configurations	CD-R Publisher DVD-R Publisher
Printing Method	Ink-Jet
Printing Resolution	2400 x 1200 dpi, 1200 x 1200 dpi, 1200 x 600 dpi, 600 x 600 dpi
Ink Types	Dual Cartridges: One 3-color (CMY) cartridge, and one Black Monochrome (K)
Media Types	Printable Surface CD-R, CD-RW, DVD-R, DVD RAM
Maximum print width	4.724" (120mm)
Recommended System	G4 PowerPC 700MHz or higher running Mac OS Version 10.2 or higher, 256MB RAM minimum, 2GB free hard disk space (6GB for DVD) Available USB and FireWire ports
Disc Capacity	25 disc input, 25 disc output
Recordable Formats	CD-R: CD-Audio (CD-DA), CD-ROM, CD-I, Video-CD, MP3 to CD-Audio (on the fly, no hard drive overhead required)
Operating Systems	Mac OSX Version 10.2 or higher
Interface	Robotic Control and Printing: USB port Image Data for recorder: IEEE1394 FireWire
Power Requirement	100-240 VAC, 50/60 Hz, 60 watts
Weight	18 lbs. (8.2kg)
Dimensions	17.25"W x 7.25"H x 16"D (438mmW x 184mmH x406mmD)
Certifications	Emissions: FCC Class B, CE
Safety	UL, UL-C, CE
Warranty	One year return-to-depot

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